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Theory to Practice

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Wireless mobile technologies play an ever-increasing role in our daily lives as they provide anytime and anywhere access to digital tools, communication channels, and resources in popular and easy-to-use formats. They enable us to have rich user experiences as we access, aggregate, create, customize, and share digital information in a variety of formats. This, in turn, provides opportunities for teaching and learning by expanding what is "pedagogically possible" (McClintock, 1999). However, many educators lack the knowledge, skills, and experience with mobile tools to integrate them effectively into their teaching and their students' learning (Ferrini-Mundy & Breaux, 2008; Kastberg & Leatham, 2005). In many schools, administrators have even banned the use of mobile devices during school hours. This is unfortunate, as research has shown that the use of these tools can extend and enhance student learning in many different subject areas.

Educational theories can possibly provide some insights in this regard. In fact, an early and often-cited review of literature in the field of mobile learning used educational theories used six theory-based categories to organize the mobile learning examples it presented, including behaviorist, constructivist, situated, collaborative, informal and lifelong, and learning and teaching support. The authors concluded that because a theory of mobile learning did not exist yet, a blended approach was needed because "successful and engaging activities draw on a number of different theories and practices." (Naismith, Lonsdale, Vavoula, & Sharples, 2004).

Despite more than a decade's worth of academic thinking, discussion, and writing, current developments in mobile learning have not yet provided the solid foundation that is necessary for a clear theory or definition, because the field as a whole has not matured to the point of providing ample experiences and best practices from which to deduce such a theory or definition (Traxler, 2009). Thus, we see the following salient issues in the area of mobile learning theory development and use:

1. Defining mobile learning theories.
2. Using this theory to improve and expand teaching and learning.
3. Providing teachers with the tools to help them connect theory to practice in meaningful ways.

1. Defining mobile learning theories

Some attempts have been made at developing a general theory of mobile learning within the last 10 to 15 years. Early definitions were derived from the field of online learning, focusing on the *technology* itself and describing mobile learning as e-learning or learning with mobile devices. These techno-centric definitions were soon replaced with more *learner-centered* ones, proposing that it is the mobility of the learner in physical and digital environments that is the most important. Most recently, the notion that mobility is not just a characteristic of individual learners but of society as a whole has come to the foreground. Related definitions focus more on learning *contexts* and *social interactions*.

For example, Sharples, Taylor, and Vavoula (2007) have proposed a theory of mobile learning that covers learning in both formal and informal environments; is based on a synthesis of research that views

effective learning as learner-centered, knowledge-centered, assessment-centered, and community-centered (Bransford, Brown, & Cocking, 2000); and takes "account of the ubiquitous use of personal and shared technology" (Sharples et al., p. 223). They define mobile learning as "the processes of coming to know through conversations across multiple contexts amongst people and personal interactive technologies" (p. 224), positing that *social interactions* drive learning and that all learning happens within a *context*.

Koole (2009) has developed a similar, more user-friendly model. Her Framework for the Rational Analysis of Mobile Education (FRAME) "describes mobile learning as a process resulting from the convergence of mobile technologies, human learning capacities, and social interaction" (p. 25; see Figure 1). Thus, it considers technology, learners, social interaction, and context as essential components of a successful mobile learning environment. Technology is important because "as mobile devices, systems and technologies become universally owned, accepted and used … the meaning and significance of learning are changing too" (Traxler, 2009, p. 7). Learners are essential because they are the ones who make meaning out of the combination of content, context, and technology. Social interactions happen in real and virtual spaces as learners get together to, well, learn! Finally, context is important because it encompasses many types of learning environments, as well as the connections between them that can be made and amplified by wireless mobile technologies.

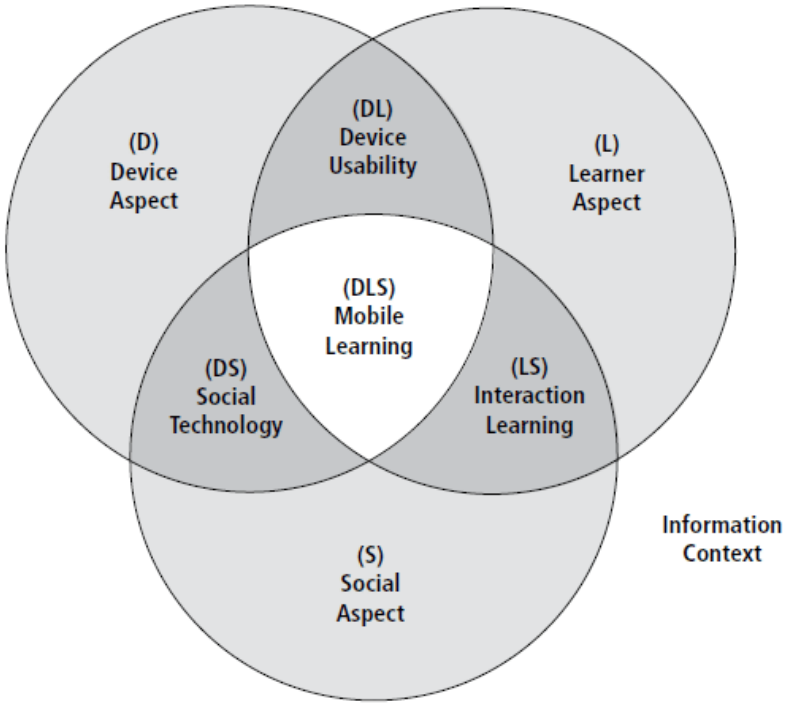

Figure 1: The FRAME Model (Koole, 2009; used with permission)

In sum, definitions of mobile learning have evolved from a focus on technology to learner to social interaction and context, but are still fluid and continue to change. While there is no holy grail of mobile learning definitions, increasingly complex learning environments that reach far beyond the traditional classroom require increasingly complex models with many components. Koole's framework illustrates the importance of concrete, straightforward models that can be relatively easily applied by teacher practitioners.

2. Using mobile learning theory to improve and expand teaching and learning

The second issue is a challenging one, and its description and possible solutions go far beyond the scope of this paper. Schools of education across the United States and beyond still struggle with finding ways to help pre-service and in-service teachers effectively integrate theory and practice. It is common knowledge that many pre-service teachers do not remember, think about, or apply much of the content that is covered in teacher education courses as soon as they enter the field experience/student teacher phase. Similarly, the majority of in-service professional development only addresses issues of practice.

There are many reasons for the disconnect between theory and practice, a lack of reflection, experience, and tacit knowledge on the part of pre-and in-service teachers. Unfortunately, many of this knowledge, skills, and attitudes are gained over time and are difficult to teach or learn. To complicate matters, shortcomings in these areas also result in a lack of perceived relevance of educational theory (including mobile learning theories) among practitioners (e.g. Korthagen & Kessels, 1999, 2001).

3. Providing teachers with the tools to help them connect theory to practice in meaningful ways

Given the challenges we face today in the development of mobile learning theory and its application for purposes of theory-guided action, what support can teachers and other educators be given to help them see the relevance of mobile learning theories and apply them in practical situations? When considering the theory-practice dilemma in general, the literature shows that possible solutions are still difficult to come by. For current and future educators, the key is to become more aware of how their own behaviors and actions in learning situations reflect mobile learning theories. Action research, (peer) mentoring, or situated professional development may provide opportunities in this regard (e.g. Korthagen, 2010, Lave & Wenger.

In addition, for such endeavors to be successful, concrete models of mobile learning theories are needed that can be easily understood and repeatedly applied to learning situations by practitioners. Koole's FRAME, for example, is valuable for practitioners in this regard, because it can be used to develop mobile learning pedagogy and curriculum.

Conclusion

For mobile learning to be effective and meaningful, educators need to rethink context, pedagogy, and curriculum within appropriate theoretical frameworks if learners are to take full advantage of the affordances that mobile devices have to offer (Swan, Kratcoski, & van 't Hooft, 2007). In order for this to happen, we need better-defined theories of mobile learning to help educators to better understand how to effectively connect practice to theory, and provide them with the tools to do so.

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